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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/073,958	02/14/2002	Shigeo Kittaka	02410273AA	8293

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EXAMINER

CHOI, WILLIAM C

ART UNIT	PAPER NUMBER
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2873

DATE MAILED: 06/22/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Am

Office Action Summary	Application No. 10/073,958	Applicant(s) KITAKA ET AL.	
	Examiner William C. Choi	Art Unit 2873	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 3,4,7,15,16 and 18-23 is/are allowed.
- 6) ☒ Claim(s) 1,2,6,8-14 and 17 is/are rejected.
- 7) ☒ Claim(s) 5 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 April 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>0304</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Information Disclosure Statement

Receipt of the Information Disclosure Statement (IDS) with the copies of the references cited therein was received on 3/18/2004. An initialized copy of the IDS is enclosed with this office action.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 2, 6, 13, 14 and 17 are rejected under 35 U.S.C. 102(b) as being anticipated by Nishimura (JP 09-61662) (Note: citations refer to the translation provided).

In regard to claims 1 and 2, Nishimura discloses an optical coupling system (page 4, section [0025], Figure 13) comprising: a first lens having an incident surface disposed in a certain direction and having a positive refractive power (Figure 13, "24 (left)"), by said first lens, Gaussian beam-like luminous flux incident on said incident surface from a light source (Figure 13, "23") being converted into approximately parallel luminous flux (Figure 13); and a second lens having the same refractive power as that of said first lens (page 4, section [0025], lines 1-6, re "same collimating system") but

having an incident surface and exit surface disposed in a reverse direction by said second lens (Figure 13, "24 (right)"), said approximately parallel luminous flux incident on said incident surface of said second lens is converted into converged luminous flux (Figure 13), said converged luminous flux being incident on a light-receiving unit (Figure 13, "23 (right)"); wherein a distance $2L$ between the two lenses is selected to be in the claimed range (page 4, section [0025], lines 1-6, re "same collimating system" and "optimum coupling").

Regarding claim 6, Nishimura discloses wherein said light source and said light-receiving unit are constituted by end surfaces of optical fibers which are equal in mode field diameter to each other (page 4, section [0025], re "same collimating system", Figure 13, "23").

Regarding claim 13, Nishimura discloses wherein said coupling system further comprises an optical functional device disposed at a midpoint between the two lenses in said optical coupling system (page 3, section [0021], Figure 8, "32").

Regarding claim 14, the optical coupling system of Nishimura would inherently be provided as an optical coupling system array in which optical coupling systems having the same function are arranged in a row or plurality of rows, this being reasonably assumed from Nishimura disclosing said coupling system as part of an optical multiplexing system (page1, section [0006]).

Regarding claim 17, Nishimura discloses wherein said first and second lenses are physically the same (page 4, section [0025], lines 1-6, re "same collimating system", Figure 13, "24 (right & left)").

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 8-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishimura as applied to claim 1 above, and further in view of Dempewolf et al (U.S. 5,815,318).

Regarding claims 8-11, Nishimura discloses as set forth above but does not specifically disclose wherein said lens having a positive refractive power is a rod lens having a gradient index distribution in a direction of a radius thereof, a plano-convex lens having a gradient index distribution in a direction of an optical axis thereof, a plano-convex lens made of homogenous material or a sphere lens made of a homogenous material. Within the same field of endeavor, Dempewolf et al teaches that it is well known in the art to have optical fibers coupled with these types of lenses (column 1, lines 16-20 and column 3, lines 38-44).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made for said lens of Nishimura having a positive refractive power to comprise the claimed types of lenses since Dempewolf et al teaches that it is well known in the art to have optical fibers coupled with these types of lenses.

Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nishimura as applied to claim 1 above, and further in view of Hamanaka et al (U.S. 2001/0024548 A1).

Regarding claim 12, Nishimura discloses as set forth above but does not specifically disclose wherein the lens has a grating lens surface. Within the same field of endeavor, Hamanaka et al teaches that it is well known in the art to have optical fibers coupled by lenses having a grating lens surface (i.e. Fresnel lens) (page 2, section [0020]).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, for the lens of Nishimura to have a grating lens surface since Hamanaka et al teaches that it is well known in the art to have optical fibers coupled by lenses having a grating lens surface.

Allowable Subject Matter

Claims 3, 4, 7, 15, 16, 18-23 are allowed.

The following is a statement of reasons for the indication of allowable subject matter: The prior art fails to teach a combination of all the claimed features as presented in claims 3, 4, 7, 15, 16, 18-23: an optical system comprising a reflective surface disposed at the rear of a positive refractive power lens, said lens converting Gaussian beam-like luminous flux emitted from a light source into approximately luminous flux as claimed, specifically wherein a distance between said lens and said reflection surface satisfies the claimed expression.

Claims 5 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: The prior art fails to teach a combination of all the claimed features as presented in claim 5: an optical coupling system as claimed specifically wherein said total coupling loss is not larger than 0.05 dB.

Response to Arguments

Applicant's arguments with respect to claims 1, 2, 6, 8-14 and 17 have been considered but are moot in view of the new ground(s) of rejection.


Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to William C. Choi whose telephone number is (571) 272-2324. The examiner can normally be reached on Monday-Friday from about 9:00 am to 6 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Georgia Y. Epps can be reached on (571) 272-2328. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

W.C.
William Choi
Patent Examiner
Art Unit 2873
June 8, 2004


Georgia Epps
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